## The Effect of Alcohols in AOT Reverse Micelles. A Heat Capacity and Light Scattering Study

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The sodium bis(2-ethylhexyl)sulfosuccinate (AOT) forms reverse micelles in n-decane containing water in the core. The radius of the water pool, and hence the size of the reverse micelle, is mainly characterized by  $R = [H_2O]/[AOT]$ . When an alcohol is added to the reverse micelles systems, the polar groups of the AOT can interact with the OH group through hydrogen bonds. We studied the effect of the addition of linear and some branched and cyclic alcohols on AOT-water-oil systems at R = 10. In this work, we have employed heat capacity measurements which are particularly sensitive to the formation or destruction of organization or structure in the bulk of liquid mixtures. For comparison with the R = 10 case, the mixtures with R = 0, *i.e.* those where water and hence reverse micelles are not present, have also been studied. For the R = 10 case, light scattering (DLS) experiments were performed to determine the z-averaged translational diffusion coefficient and the corresponding hydrodynamic radius of the reverse micelles with and without alcohol. The Treszczanowicz-Kehiaian (TK) model extended for ternary systems has been used here as the theoretical framework to interpret our heat capacity data and to obtain the volume-fraction equilibrium constants for the associated species and the enthalpy change for the formation of one hydrogen bond.